



SAIC0006-US

AMENDMENTS TO THE CLAIMS:

RECEIVED PATENT
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31. (Cancelled)

32. (Currently Amended) A method for contact recording at least one hologram comprising:

arranging at least a first master hologram having an electrically controllable, continuously variable diffraction efficiency including at least diffraction efficiency states ON and OFF and at least a first holographic blank in optical contact and a second master hologram with electrically controllable variable diffraction efficiency and a second holographic blank in optical contact to form a master/blank assembly;

exposing the master/blank assembly to a pre-recording beam; and

exposing the master/blank assembly to a recording beam, the continuously variable first master hologram is switched OFF during exposure of the master/blank assembly to the pre-recording beam and the first master hologram is switched ON during exposure of the master/blank assembly to the recording beam, thereby forming a first replica of the first master hologram in the first holographic blank;

wherein the master/blank assembly remains optically contacted throughout each exposure thereby forming ~~a~~ the first replica of the at least a first master hologram in the at least a first holographic blank, wherein the first replica exhibits the electrically controllable, continuously variable diffraction efficiency of the at least a first master hologram and includes diffraction efficiency states ON and OFF; and

further wherein the first master hologram and the first replica are switched OFF during each of the following, exposure of the second holographic blank to a pre-recording

beam, recording of the second master hologram with electrically controllable variable diffraction efficiency in the second holographic blank, and exposure of a resulting second replica to a post-recording beam.

33. (Original) The method according to claim 32, further comprising exposing the master/blank assembly to a post-recording beam.

34 – 37. (Cancelled)

38. (Currently Amended) The method according to claim 37 33, wherein the first master hologram is switched OFF during exposure of the master/blank assembly to the post-recording beam.

39. (Original) The method according to claim 33, wherein the pre-recording beam, the recording beam, and the post-recording beam are the same beam.

40. (Original) The method according to claim 33, wherein of the pre-recording beam, the recording beam, and the post recording beam at least one is different from the others.

41. (Cancelled)

42. (Cancelled)

43. (Currently Amended) The method according to claim 37 32, wherein the first replica is formed of a polymer-dispersed liquid crystal material.

44. (Cancelled)

45. (Currently Amended) The method according to claim 44 32, wherein the first master hologram and the second master hologram are the same master hologram.

46. (Cancelled)

47. (Previously Presented) A system for contact recording multiple holograms comprising:

a first, second, and third master hologram with variable diffraction efficiencies;

a first, second, and third holographic blank wherein the first, second, and third master hologram and the first, second, and third holographic blanks are in optical contact, forming a stack; and

a first, second, and third recording beam, wherein when the first recording beam is incident upon the stack, the first master hologram is ON and the second and third master holograms are OFF, forming a first replica hologram with variable diffraction efficiency of the first master hologram in the first holographic blank; when the second recording beam is incident on the stack, the first and third master holograms are OFF, the first replica hologram is OFF, and the second master hologram is ON, forming a second replica hologram with variable diffraction efficiency of the second master hologram in the second holographic blank; when the third recording beam is incident on the stack, the first and second master holograms are OFF, the first and second replica holograms are OFF, and the third master hologram is ON, forming a third replica hologram with variable diffraction efficiency of the third master hologram in the third holographic blank.

48. (Previously Presented) A method for contact printing multiple master holograms comprising:

providing a stack comprised of first, second, and third master holograms with variable diffraction efficiencies and first, second, and third holographic blanks that are in optical contact;

switching ON the first master hologram;

exposing the stack with a first recording beam, forming a first replica hologram with variable diffraction efficiency within the first holographic blank;

switching OFF the first master hologram and switching ON the second master hologram;

exposing the stack with a second recording beam, forming a second replica hologram with variable diffraction efficiency within the second holographic blank;

switching OFF the second master hologram and switching ON the third master hologram; and

exposing the stack with a third recording beam, forming a third replica hologram with electrically controllable variable diffraction efficiency within the third holographic blank.